



## **Nashville Department of Transportation and Multimodal Infrastructure Microtrench Policy and Specifications (8/21)**

### **I. General**

Nashville Department of Transportation) requires adherence to the engineering specification for utility installation, which is derived from current industry standards for underground utilities. Standards for construction include width, depth, location in the right-of-way, clearance from other utilities, material cover, compaction requirements, and conduit specifications. NDOT's Engineering Details and Specification may be found at:

<https://www.nashville.gov/Public-Works/Developers/Details-and-Specifications.aspx>

If an alternative installation is requested, it will be evaluated based on several factors, including but not limited to: roadway classification (e.g., arterial, collector, or local), traffic volumes, signalized intersections, condition and age of the existing pavement, existing utility infrastructure, and other site specific circumstances. **Requests for alternative trench installations are required to include detailed drawings of the proposed route(s), justification for the non-standard trench installation, and if approved, an electronic as-built file.**

### **II. Purpose & Background**

This policy is established to describe the means and methods by which a Permittee will be permitted to work within the Nashville Department of Transportation right-of-way by microtrenching.

- A. The placement of utilities in NDOT's rights-of-way is at the discretion of NDOT. NDOT Code Chapter 13.20 states that: "No person shall dig or cause to be dug any excavation nor cause any obstruction to be constructed or placed in, on, over or under any street, road, alley, sidewalk or other public way, nor shall any person close or occupy any portion of the public right-of-way by means of or in connection with any excavation or obstruction within the jurisdiction of the metropolitan government without having first applied for and obtained from the director a permit to do so." The cost of the permit will vary depending on the location of work, the linear miles of installation, and the age of the pavement.
- B. Fiber optic cable must be placed in conduit(s) when located underground on arterial and collector roadways or when installed in grassed or dirt areas. Fiber optic cable located on local roads may be installed by direct bury methods without conduit. NDOT will review and approve all routes, methods, and materials for installation on NDOT roadways. Guidance is provided by the Microtrenching Standard Details found in attached drawings.

### **III. Right-of-way Permits**

NDOT monitors utility work through the utility permitting process. This process allows NDOT to coordinate activities between NDOT forces and other utilities to maintain a record of street cuts and repairs, and to identify specific NDOT requirements. A list of permit requirements may be found at:

<http://www.nashville.gov/Public-Works/Permits/Right-of-Way-Permits.aspx>

## **Microtrench Policy and Specifications (8/21)**

### **A. Permit Requirements**

Any work within the right-of-way which disturbs pavement, curb and gutter, driveway entrances, sidewalk, landscaping, or grassed areas requires a permit.

### **B. Obtaining Permits**

Before microtrenching work may begin within the right-of-way, the necessary permit must be obtained from the NDOT Permit Office. Emergency work requires that a permit be obtained as soon as possible but not later than 12 hours after commencing the work. Permits are usually issued for the time period requested by the Permittee. However, when situations warrant, the permit expiration date may be extended when prior notification is received. If work on an existing permit has not been started by the expiration date, the permit will be canceled, and a new permit will be required.

### **C. Responsibility**

The Permittee must:

1. Always have a copy of the permit on the job site.
2. Be solely responsible for the work performed. NDOT will contact the Permittee for required adjustments or corrections regardless of whether the Permittee performed the work itself or subcontracted and assigned the work.
3. Be responsible for the condition of all right-of-way repairs. The restoration must be made with like materials or by approved methods to that which the street, alley, sidewalk, or highway is constructed.
4. Within seven (7) days after the completion of the work allowed by such permit, report in writing to the NDOT Chief Engineer, or designee, that the work has been completed and request inspection.
5. Ensure that all microtrench repair will be either done by conventional repair methods, or if done by alternate methods and repaired by using an asphaltic or cementitious high-performance crack fill method as shown in the Attached drawings, then the Contractor must warranty the repair for no less than two (2) years. If the microtrench requires repair before the remainder of the roadway qualifies for resurfacing, then the Utility Owner will be Responsible for making subsequent repairs by like methods or infrared repair. Should such owner fail to maintain, repair, or reconstruct any such surface within 10 days after written notice from the Chief Engineer, or designee, NDOT may have such surface repaired or reconstructed and will charge the cost of repair, including any costs associated with the use of any like materials used in restoration, to the owner or company responsible for the initial repair.
6. The Permittee must maintain the condition of the surface over the repair area for one (1) year in as good or better condition as the remainder of the street, alley, sidewalk,

or right-of-way, and must repair or reconstruct the surface as often as may be necessary by conventional patch repair methods. If the Permittee is approved by NDOT, and the Contractor decides to use the microtrench alternative repair methodology discussed in this section and in the attached drawings, the Contractor must maintain the street in as good (or better) condition as the remainder of the street, alley, sidewalk, or right-of-way and must repair or reconstruct the surface as often as may be necessary for a period of **two (2) years**. Should the condition of the restoration become such that additional pavement is in jeopardy of failure, then the Permittee may be held responsible for an area larger than the original repair.

#### **IV. Microtrench Alternative Specification**

Microtrenching is a low-impact slot-cut trenching method that enables quick installation of underground fiber in trenches that are narrower and shallower than typical open trenches currently used in the industry. When using a microtrench, the Contractor may follow traditional pavement repair guidelines or, if requested, may use the alternative crack filling methods outlined in this section. The Permit Applicant, Contractor, and/or Utility Owner must indemnify and hold harmless NDOT, its elected and appointed officials, employees, agents, and successors from any and all liabilities, losses, claims, settlement payments, costs and expenses, damages, penalties, fines, attorney's fees, and other amounts resulting from construction, operation, and maintenance activities of all infrastructure installed in a microtrench inside the rights-of-way owned by NDOT.

- A. The NDOT Chief Engineer, or designee, may approve use of microtrenching requests for specifically approved areas. Microtrenching must follow these engineering specifications and the Standard Details in attached drawings. Any deviation from these engineering specifications and Standard Details will be considered on a case-by-case basis by NDOT and approved in writing prior to commencing construction.
- B. All requirements of the NDOT trench and utility cut guidelines, specifications, and details must be complied with except as specifically permitted in this section. Requests that involve placement of cable/conduit within the asphalt pavement at depths shallower than required in the trench and utility cut guidelines and specifications and as shown on the corresponding Standard Details must comply with the following supplementary requirements for microtrenching within pavement areas.
- C. Supplementary Requirements for Microtrenching within the Right-of-Way:
  - 1. NDOT may allow microtrenching construction in the right-of-way at a depth and configuration as shown in Standard Details, ST-276. The microtrenching Contractor must acquire an excavation and a lane/street closure permit from the NDOT Permit Office prior to commencing work per NDOT Code Chapter 13.20.
  - 2. If requested in writing, NDOT will notify all microtrench-installed Utility Owners of the upcoming year's paving and infrastructure maintenance plans at least thirty (30) days prior to commencing work. This will allow the Utility Owner ample time to relocate or protect its utility prior to construction.

## **Microtrench Policy and Specifications (8/21)**

3. All microtrenches installed utilities must be able to be located by calling 811 or the TN One Call System.
4. At no cost to NDOT, the Applicant must provide permanent on-going maintenance to the fiber routes in the project areas. Maintenance must include providing materials and labor to properly maintain in good condition pavement, sidewalks, curbs, curbs and gutters, shoulders, furnishing zones, and softscape areas (dirt and grass) per NDOT standards.
5. At no cost to NDOT, the Applicant must replace any fiber/conduit that is damaged or destroyed due to any infrastructure maintenance or installation activities performed by any/all NDOT agencies. This also includes those activities necessary to maintain stormwater infrastructure, water distribution, sanitary sewer, sidewalk, roadway, paving, signal installation, or other activities that may commence at the sole discretion of NDOT.
6. At no cost to NDOT, the Applicant must replace all existing fiber/conduit damaged or destroyed in the furnishing zone or shoulder of the roadway or ditch lines within the NDOT right-of-way.
7. NDOT will not be responsible for any damage to, or resulting from, the installation of cable/conduit construction activities by the Applicant, its contractors, and/or others within project areas.
8. The Applicant agrees that it will not hold responsible the residents or its contractors that may damage the fiber conduit when installed by using the microtrench alternative installation method.
9. The Applicant agrees to conform to the NDOT standard specification and the terms of the Pavement Repair Specifications (Section 02575). Any changes will be at the sole discretion of NDOT.
10. NDOT collects pavement condition data on a two-year cycle and if the microtrench is found to be failing or in disrepair, the Contractor on the permit and Utility Owner will be contacted and will be required to make subsequent repairs.
11. Prior to placement of any backfill, the NDOT Permit Office must be notified and an inspection of the trench will be made by a representative of NDOT. At the completion of the backfill, the NDOT Permit Office must be notified and an inspection of the location will be performed to ensure compliance with this and all standard details, specifications, and procedures.
12. NDOT Permit Office inspection personnel must be notified by the Contractor Permittee no less than two (2) days prior to the request for inspection.
13. Existing pavements, bases, curbs and gutters, and sidewalks must be cut and brought to

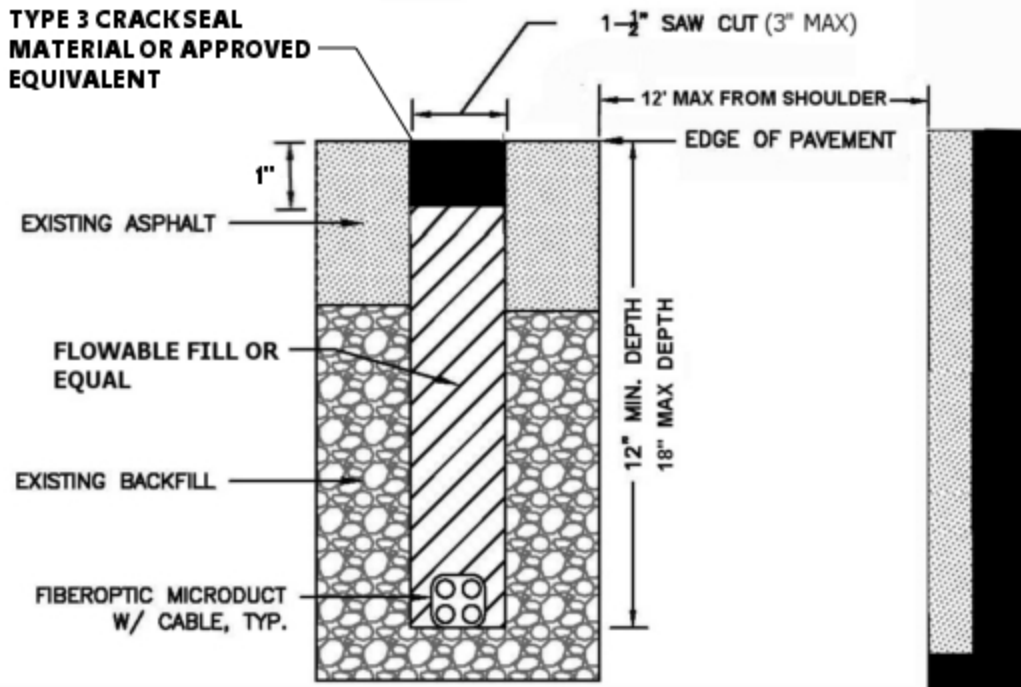
## **Microtrench Policy and Specifications (8/21)**

a neat line by use of an air hammer, saw, or other suitable equipment. All expansion joints removed must be replaced with like materials or an approved cementitious or asphaltic patch material.

14. The Applicant is responsible for filling out and submitting the standard excavation application. In conjunction with the standard excavation application, an additional drawing must be submitted, including lengths and locations of the proposed trench location prior to permit approval.
15. The Contractor will be liable and responsible for all microtrenching excavations in the roadway that are not filled, which may be a hazard to the pedestrian, bicycle, and non-vehicular community. All roads must be signed such that the Permittee indemnify Metro against any hazards that may exist.
16. Microtrenches are required to be installed at the edge of the gutter line where the gutter no gutter. The trench must be linear in nature and have a shape consistent with the roadway's horizontal alignment. When a subsequent (second, third, fourth, etc.) trench is installed, it must be no more than one (1) foot inside the last trench or on the other side of the street. It is incumbent on each Utility Owner to work with future Utility Owners that wish to install in the same manner.
17. All microtrenches installed in the roadway pavement, or adjacent to the curb and gutter, must be between one-and-a-half (1½) inches to three (3) inches in width and between 12 inches to 18 inches in depth. The microtrench must be filled with a flowable fill, or approved equal material, the same day the fiber is installed. The flowable fill material, or approved equal material, covering the fiber must be installed from the bottom of the trench to a depth one (1) inch from the top of the trench. The hot applied crack seal material used to seal the remaining one (1) inch of the microtrench in the roadway and next to the curb and gutter will not be installed until the trench is 100% dry. The Contractor will be required to use a heat lance to dry the entire trench before any hot crack seal material is installed.
18. There are 2 approved alternatives specs to filling a microtrench to cover the fiber utility in the Roadway . ( Please see attached ST-276A1 & ST-276A2) 1st Alternative uses a flowable fill and 1 inch seal. 2nd Alternative uses a 1000 to 1200 psi flowable to the top of the trench.
19. All Microtrenches installed greater than 24 inches from the curb and gutter or shoulder of the roadway shall require full lane width mill and paving by the Contractor. See Pavement Repair Specification 02575-7.8.
20. All Microtrenches placed within the limits of NDOT's Bikelane will require the Contractor to mill and pave the Bikelane and replace all markings within the limits of the microtrenches. All Microtrenches placed on roadways less than 5 years old shall require full lane with mill and pave.

21. **All Microtrenches installed in the furnishing zone, shoulder, or softscape areas must meet the Guidelines for Tree Zone Projection in NDOT Codes of Ordinance in Figure 17.124.11020. All sidewalk repair is to be done to the nearest contraction joint per the NDOT sidewalk specifications and to meet all ADA guidelines. All concrete repairs must be made by approved methods and with the use of like materials or by using a high-performance mortar or an approved equal. The NDOT Permit Office must approve all concrete repairs after construction is completed. Requests for final inspection must be made with at least a two (2) day notice.**
  
22. **NDOT reserves the right to terminate the associated activities within each or all the Nashville Department of Transportation approved areas without cause after thirty (30) days written notice or for cause immediately at the sole discretion of NDOT. Any outstanding costs, debt, or other financial commitments related to the project will become the sole responsibility of the Applicant to address. Upon cancellation, the terms of this agreement, more specifically, the maintenance obligations of the Applicant, will survive in perpetuity and the bond will remain in place until the warranty period is completed.**

# MICRO TRENCH REPAIR (ROADWAY) ALTERNATIVE -276A1



NOT TO SCALE

**NASHVILLE DEPARTMENT of TRANSPORTATION  
& MULTIMODAL INFRASTRUCTURE**

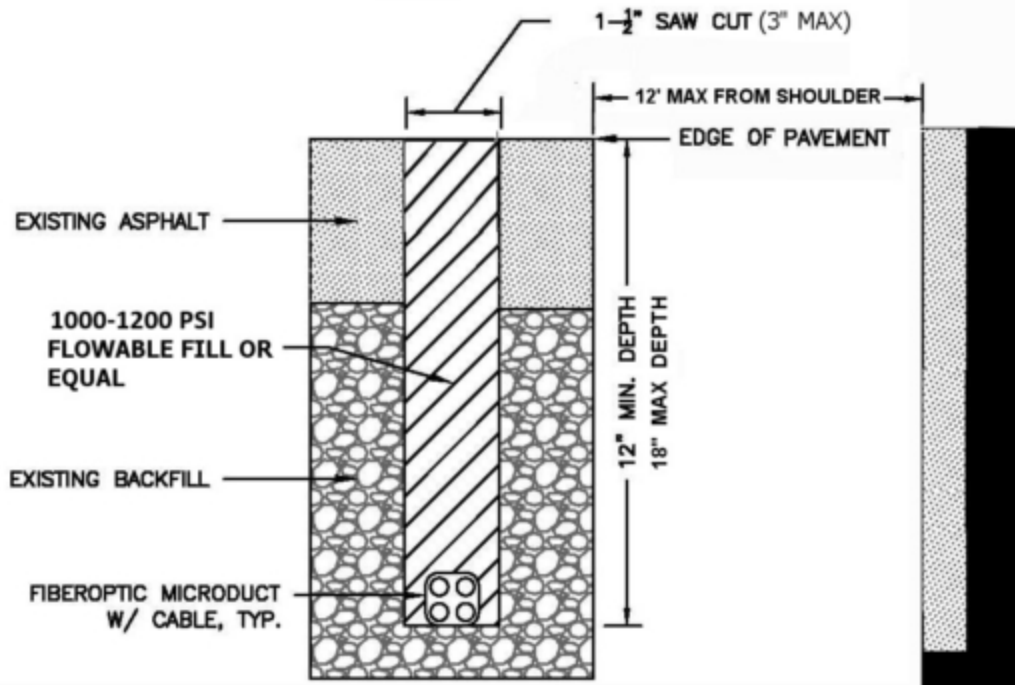
**MICRO TRENCH  
( ROADWAY )**

**DWG. NO. ST-276A1**

**DIR. OF ENG.:** *Shane White* **DATE:** 09/01/2021

**REVISED:** 5/14/21

# MICRO TRENCH REPAIR (ROADWAY) ALTERNATIVE -276A2



NOT TO SCALE

NASHVILLE DEPARTMENT of TRANSPORTATION  
& MULTIMODAL INFRASTRUCTURE

MICRO TRENCH  
( ROADWAY )

DWG. NO. ST-276A2

DIR. OF ENG.:

*Shanna White*

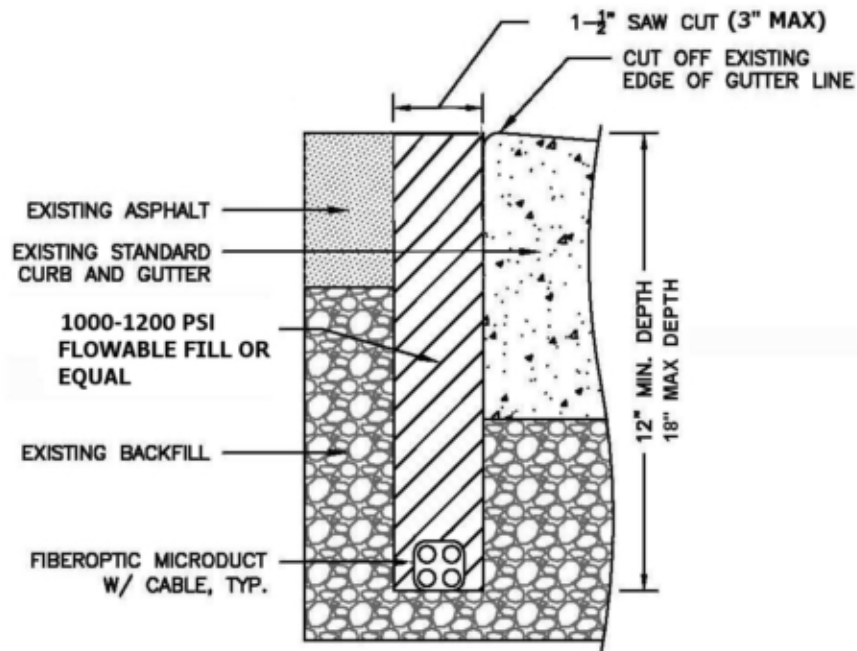
DATE:

09/01/2021

REVISED: 5/14/21



# MICROTRENCH REPAIR (CURB AND GUTTER)



NOT TO SCALE

NASHVILLE DEPARTMENT of TRANSPORTATION  
& MULTIMODAL INFRASTRUCTURE

MICROTRENCH  
REPAIR (CURB AND  
GUTTER)

DWG. NO. ST- 276B

DIR. OF ENG.:

*Shane White*

DATE: 09/01/2021

REVISED: 7/14/21

### **MICROTRENCHING NOTES:**

1. ALL EXCAVATIONS MADE WITHIN PUBLIC RIGHTS-OF-WAY REQUIRE EXCAVATION AND LANE CLOSURE PERMITS FROM THE NASHVILLE DEPARTMENT OF TRANSPORTATION PERMIT OFFICE PRIOR TO COMMENCING WORK PER NDOT CODE CHAPTER 13.20.
2. IF ANY TYPE OF FAILURE OCCURS IN THE BACKFILL MATERIAL DURING THE INSTALLATION OF THE UTILITY, THE PERMIT OFFICE MUST BE NOTIFIED AND AN INSPECTION OF THE TRENCH WILL BE MADE BY A DEPARTMENT REPRESENTATIVE. THE COMPLETION OF THE BACKFILL AND AN INSPECTION OF THE LOCATION WILL BE PERFORMED TO ENSURE COMPLIANCE WITH THIS AND ALL STANDARD DETAILS AND SPECIFICATIONS.
3. NDOT PERMIT OFFICE INSPECTION PERSONNEL MUST BE NOTIFIED BY THE CONTRACTOR/PERMITTEE NO LESS THAN TWO (2) DAYS PRIOR TO REQUEST FOR INSPECTION.
4. EXISTING PAVEMENTS, BASES, CURBS AND GUTTERS, AND SIDEWALKS MUST BE CUT AND BROUGHT TO A NEAT LINE BY USE OF AN AIR HAMMER, SAW, OR OTHER SUITABLE EQUIPMENT. ALL EXPANSION JOINTS REMOVED MUST BE REPLACED AND THE REPAIR MUST BE MADE BY CONVENTIONAL METHODS WITH LIKE MATERIALS OR AN APPROVED PATCH MATERIAL.
5. IF ALTERNATIVE 276A-1 IS CHOSEN, THE MATERIAL APPROVED TO COVER THE FIBER UTILITY IN THE MICROTRENCH MUST BE INSTALLED THE SAME DAY THE FIBER OPTIC CABLE IS INSTALLED. THE MATERIAL MUST BE INSTALLED FROM THE BOTTOM OF THE MICROTRENCH TO A HEIGHT ONE (1) INCH FROM THE TOP OF THE MICROTRENCH. CONES MUST BE PLACED OVER THE MICROTRENCH UNTIL THE REMAINING ONE (1) INCH TRENCH DEPTH IS FILLED WITH AN APPROVED MATERIAL. THE MATERIAL USED TO SEAL THE REMAINING ONE (1) INCH OF THE MICROTRENCH MUST NOT BE INSTALLED UNTIL THE TRENCH IS 100% DRY. THE CONTRACTOR IS REQUIRED TO USE A HEAT LANCE TO DRY THE TRENCH BEFORE INSTALLING HOT MIX CRACK SEAL MATERIAL TO SEAL THE REMAINING ONE (1) INCH OF THE MICROTRENCH.

IF ALTERNATIVE 276A-2 IS CHOSEN, THE MATERIAL USED TO COVER THE FIBER UTILITY IN THE TRENCH SHALL BE A 1000-1200 PSI FLOWABLE FILL OR EQUAL INSTALLED FROM THE BOTTOM OF THE MICROTRENCH ALL THE WAY LEVEL TO THE ROADWAY SURFACE.

6. IN THE EVENT OF ANY CONFLICT, DISCREPANCY, OR INCONSISTENCY AMONG THE PLANS AND THESE STANDARDS, THE REQUIREMENTS OF THE STANDARD DETAILS SHALL GOVERN.
7. THE CONTRACTOR MUST FILL OUT AND SUBMIT THE STANDARD EXCAVATION APPLICATION. PRIOR TO PERMIT APPROVAL, AN ADDITIONAL DRAWING MUST BE SUBMITTED, INCLUDING LENGTH, WIDTH, AND LOCATION OF THE TRENCH IN THE RIGHT-OF-WAY.
8. IF MICROTRENCH INSTALLATION FAILS OR REQUIRES SIGNIFICANT REPAIR WITHIN THE WARRANTY PERIOD, THE UTILITY OWNER OR MICROTRENCH CONTRACTOR IS RESPONSIBLE FOR REPAIRING ITS TRENCH BY MILLING AND PAVING.
9. THE CONTRACTOR IS LIABLE AND RESPONSIBLE FOR ALL MICROTRENCHING EXCAVATIONS IN THE ROADWAY THAT ARE NOT FILLED, WHICH MAY BE A HAZARD TO THE PEDESTRIAN, BICYCLIST, AND NON-VEHICULAR COMMUNITY. ALL ROADS MUST BE SIGNED SUCH THAT THE PERMITEE INDEMNIFIES METRO AGAINST ANY HAZARDS THAT MAY EXIST.
10. MICROTRENCHING WILL NOT BE PERMITTED ON METRO STREETS THAT HAVE BEEN RESURFACED WITHIN THE LAST FIVE (5) YEARS WITHOUT WRITTEN PERMISSION AND A RESURFACING/REPAIR PLAN APPROVED BY THE MPW CHIEF ENGINEER, OR DESIGNEE. MICROTRENCHING IS NOT PERMISSIBLE ON ANY STATE HIGHWAYS WITHOUT THE PRIOR WRITTEN APPROVAL AND AUTHORIZATION OF TDOT.
11. ONLY AN APPROVED MICROTRENCH MATERIAL MAY BE USED FOR ASPHALT ROADWAYS WITHIN DAVIDSON COUNTY. ALL OTHER TRENCHING MATERIALS MUST BE APPROVED BY THE NDOT CHIEF ENGINEER, OR DESIGNEE, PRIOR TO PLACEMENT ON ANY TRENCHING PROJECT.
12. MICROTRENCHES INSTALLED ON ROADS WITH CURB AND GUTTER ARE REQUIRED TO BE CUT AT THE EDGE OF THE GUTTER LINE WHERE THE GUTTER MEETS THE ASPHALT, OR NO MORE THAN ONE (1) FOOT OFF THE EDGE OF PAVEMENT WHERE THERE IS NO GUTTER. THE TRENCH MUST BE LINEAR IN NATURE AND HAVE A SHAPE CONSISTENT WITH THE ROADWAY'S HORIZONTAL ALIGNMENT.
13. ALL MICROTRENCHES INSTALLED IN THE PAVEMENT MUST BE NO MORE THAN THREE (3) INCHES IN WIDTH AND NO LESS THAN 12 INCHES IN DEPTH. ANY MICROTRENCH MORE THAN THREE (3) INCHES IN WIDTH MUST BE MILLED AND PAVED AS THE FINAL REPAIR.

14. ALL SIDEWALK REPAIR MUST BE DONE TO THE NEAREST CONTRACTION JOINT PER THE NDOT SIDEWALK SPECIFICATIONS AND MUST MEET ALL ADA GUIDELINES. ALL CONCRETE REPAIRS MUST BE MADE BY APPROVED METHODS.
15. ANY UTILITY COMPANY USING MICROTRENCHING TO INSTALL CABLE WITHIN THE RIGHT-OF-WAY MUST MAINTAIN AT LEAST 12 INCHES SEPARATION FROM EXISTING UTILITIES.
16. ALL MICROTRENCHES ADJACENT TO THE CURB AND GUTTER ALONG THE ROADWAY GREATER THAN 24 INCHES SHALL HAVE FULL LANE WIDTH PAVING BY THE CONTRACTOR.. REFER TO SPEC ST-271a FOR MORE INFORMATION.
17. ALL MICROTRENCHES PLACED WITHIN THE LIMITS OF NDOT'S BIKELANE WILL REQUIRE THE CONTRACTOR TO MILL AND PAVE THE BIKELANE AND REPLACE ALL MARKINGS WITHIN THE LIMITS OF THE MICROTRENCH.
18. IF A NDOT AGENCY DAMAGES THE UTILITY IN A MICROTRENCH WITHIN THE RIGHT-OF-WAY, IT IS THE SOLE RESPONSIBILITY OF THE UTILITY OWNER TO MAKE ALL NECESSARY REPAIRS, HOLDING NDOT AGENCIE HARMLESS TO DAMAGES.